Appendix 2

ANSI/IEC Relay Symbols

There are two methods for indicating protection relay functions in common use. One is given in ANSI Standard C37-2, and uses a numbering system for various functions. The functions are supplemented by letters where amplification of the function is required. The other is given in IEC 60617, and uses graphical symbols. To assist the Protection Engineer in converting from one system to the other, a select list of ANSI device numbers and their IEC equivalents is given in Figure A2.1.

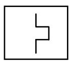
Description	ANSI	IEC 60617	Description	ANSI	IEC 60617
Overspeed relay	*12*	$\omega >$	Inverse time earth fault overcurrent relay	*51G*	I ⏚ $>$ (inverse time)
Underspeed relay	*14*	$\omega <$	Definite time earth fault overcurrent relay	*51N*	I ⏚ $>$ (definite time)
Distance relay	*21*	$Z <$	Voltage restrained/controlled overcurrent relay	*51V*	U ↗ $I >$ (inverse time)
Overtemperature relay	*26*	$\theta >$	Power factor relay	*55*	$\cos\varphi >$
Undervoltage relay	*27*	$U<$	Overvoltage relay	*59*	$U>$
Directional overpower relay	*32*	→ $P >$	Neutral point displacement relay	*59N*	$U_{rsd} >$
Underpower relay	*37*	$P <$	Earth-fault relay	*64*	I ⏚ $>$
Undercurrent relay	*37*	$I <$	Directional overcurrent relay	*67*	→ $I >$
Negative sequence relay	*46*	$I_2 >$	Directional earth fault relay	*67N*	→ I ⏚ $>$
Negative sequence voltage relay	*47*	$U_2 >$	Phase angle relay	*78*	$\varphi >$
Thermal relay	*49*		Autoreclose relay	*79*	O → I
Instantaneous overcurrent relay	*50*	$I >>$	Underfrequency relay	*81U*	$f <$
Inverse time overcurrent relay	*51*	$I >$ (inverse time)	Overfrequency relay	*81O*	$f >$
			Differential relay	*87*	$I_d>$

Figure A2.1 – ANSI number/IEC symbol comparison